AMENDMENTS TO THE CLAIMS:

Claim 1 (Previously presented): A detection system for a bio-separation device, comprising:

a separation channel having an exit and a first width;

a detection section having a second width larger than the first width of the separation channel, wherein flow from the separation channel exits from ~~along~~ the exit of the separation channel into the detection section, and wherein mixing or diffusion of analytes occurs near the exit of the separation channel;

the separation channel having a first width, and the detection section having a second width larger than the first width of the separation channel and a transition in width from the first width of the separation channel to the second width of the detection section;

an excitation system introducing excitation radiation at the detection section; and

a detector system detecting radiation emission axially from a location along the detection section defining a detection zone as analytes pass the detection zone, said location being defined at a distance of 100 to 500 times the second width of the detection section from the exit of the separation channel, thereby allowing analytes sufficient distance to regroup from the mixing or diffusion near the exit of the separation channel, said detector system including an optic fiber having an end in close proximity to the detection zone.

Claim 2 (Previously presented): The detection system as in claim 1, wherein the detector system comprises a fiber that is directed into an end of the detection section in proximity to the detection zone.

Claim 3 (Previously presented): The detection system as in claim 2, wherein the excitation system comprises a radiation transmitting structure introducing excitation radiation axially at the detection zone.

Claim 4 (Previously presented): The detection system as in claim 3, wherein the radiation transmitting structure comprises a fiber that is directed into an end of the detection section in proximity to the detection zone.

Claim 5 (Previously presented): The detection system as in claim 4, wherein the detector system shares the fiber with the radiation transmitting structure to transmit excitation radiation and radiation emission.

Claim 6 (Original): The detection system as in claim 5, further comprising a confocal optical element that transmits excitation radiation and radiation emission.

Claim 7 (Original): The detection system as in claim 6, wherein the confocal optical element comprises micro-lenses.

Claim 8 (Original): The detection system as in claim 6, wherein the confocal optical element comprises a beam combiner.

Claim 9 (Previously presented): The detection system as in claim 1, wherein the detector system comprises a set of micro-lenses.

Claim 10 (Canceled)

Claim 11 (Previously presented): The detection system as in claim 2 wherein the excitation system comprises a radiation source and a light transmitting material disposed between the radiation source and the detection zone to guide excitation radiation to the detection zone.

Claim 12 (Currently amended): The detection system as in claim 11 wherein the excitation system further comprises a boundary material that surrounds the light transmitting ~~emitting~~ material and guides ~~for guiding~~ the excitation radiation to the detection zone.

Claim 13 (Currently amended): The detection system as in claim 12 wherein the light transmitting material has a refractive index greater than the refractive index of the boundary material to guide the excitation radiation ~~from the radiation source~~ to the detection zone by internal reflection.

Claim 14 (Original): The detection system as in claim 13, wherein the boundary material is embodied in a tube.

Claim 15 (Previously presented): The detection system as in claim 1 wherein the analytes comprise a material that fluoresces in the presence of the excitation radiation, and the detector system comprises a detector detecting fluorescence emission of the material.

Claim 16 (Currently amended): A bio-separation instrument, comprising:

a separation channel having a first width and an exit;

a separation system separating a sample in the separation channel into analytes; and

a detection system, comprising:

(a) a detection section having a second width larger than the first width of the separation channel wherein flow from the separation channel exits from the exit of the separation channel into the detection section, and wherein mixing or diffusion of analytes occurs near the exit of the separation channel;

(b) a radiation system introducing excitation radiation at the detection section; and

(c) a detector system detecting radiation emission axially from a location along the detection section defining a detection zone as analytes pass the detection zone, said location being defined at a distance of 100 to 500 times the second width of the detection section from the exit of the separation channel, thereby allowing analytes sufficient distance to regroup from the mixing or diffusion near the exit of the separation channel, said detector system ~~means for detecting radiation emission~~ including an optic fiber having an end in close proximity to the detection zone.

Claim 17 (Currently amended): The detection system as in claim 17 wherein the radiation emission is at least one of:

fluorescene;

chemiluminescence; or ~~and~~

phosphorescence.

Claim 18 (Previously presented): A bio-separation instrument as in claim 17, wherein the separation channel is defined by a capillary column, and the separation system is configured to effect separation of the sample by electrophoresis.

Claim 19 (Canceled)

Claim 20 (Canceled)

Claim 21 (Canceled)

Claim 22 (Currently amended): A detection system for a bio-separation device, comprising:

a ~~seperation~~ separation channel having an exit and a first width;

a detection section having a second width larger than the first width of the separation channel, wherein flow from the separation channel exits from the exit of the separation channel into the detection section, and wherein mixing or diffusion of analytes occurs near the exit of the separation channel;

an excitation system introducing excitation radiation axially at a location along the detection section defining a detection zone as analytes pass the detection zone, said location being defined at a distance of 100 to 500 times the second width of the detection section from the exit of the separation channel, thereby allowing analytes sufficient distance to regroup from the mixing or diffusion near the exit of the separation channel, said excitation system including an optic fiber having an end in close proximity to the detection zone; and

a detector system detecting radiation emission from the detection zone.